

ness. They were all asleep in about a minute—and remained so for some time. In nothing does chloroform differ from ether more than in its soporific effects—when given in full doses; and continued for some time.—3. In small doses as a diffusible stimulant; to arrest the first commencement of ague, ophioria, &c.; in hysteria, &c. Perhaps it may be used by inhalation in small quantities when the stomach will not bear wine or other stimulants; in severe vomiting, fevers, &c. I have seen its inhalation at once dispel a sick headache.

*Cautions.*—The liquid used should be sufficiently strong. Its proper sp. gr. is (as I have said) 1.480. It is certainly far too powerful an agent to be intrusted to nurses or unprofessional individuals. I have given it, up to this date, to above eighty persons, without the slightest bad result of any kind whatever in any one of them. The power, however, which we have with it, of bringing down the pulse, &c., shows that, if exhibited in too strong a dose, and given uninterruptedly for too great a length of time, it would doubtless produce serious consequences, and even death. But, certainly, all its full anæsthetic and other influences may be perfectly obtained without allowing it to produce such depression as would be in any degree dangerous. Like many other agents, it may be powerful for evil as well as for good. I believe its great potency will be one great safeguard against its abuse.

“Its influence upon the blood, &c., the counter indications to its use, &c. &c., remain still to be ascertained.”

67. *The New Lætheon Agent.*—At a meeting of the Westminster Medical Society, (Nov. 20th,) Dr. Snow made some remarks respecting chloroform. He said that this agent, which had been introduced by Dr. Simpson, to be inhaled instead of ether, was preferable to the latter in some respects, although it was impossible that anything could be more efficient than ether, as it was capable of totally preventing the pain in every operation in which it might be properly applied. He considered that the action of chloroform on the nervous system was identical with that of ether; by regulating the proportion of vapour in the air, he had produced the same effects on animals by both agents; chloroform, however, had the advantage of being less pungent, and, therefore, less care was required in graduating its first admission to the lungs; it was readily inhaled, and produced its effects with great rapidity, and the quantity of it consumed was curiously small when compared with ether. He had administered it on Thursday, in an amputation of the breast performed by Mr. Tatum, at St. George's Hospital. He gave it with his usual apparatus, the water-bath being 55°, and the quantity of vapour in the air inhaled not more than ten per cent. by measure, yet the patient was ready for the operation to begin in less than a minute, and it was performed without the least sign of pain, being equal to the best cases of etherization. The patient recovered her consciousness, as might have been expected from narcotism by ether to the same degree, and she was going on well. Only one fluidrachm of the material was used, although about ten fluidrachms of ether would probably have been used in the same operation. He (Dr. Snow) had inhaled it until he became unconscious, and was very sick afterwards, as on the only occasion on which he inhaled ether to the same extent. When the full effects of ether could be induced quickly, there was no preliminary excitement, and as the new agent produced its effects very speedily, excitement previous to insensibility could probably be altogether avoided in its use. The chloroform placed on the table had been given to him by Mr. Bullock, the chemist; it had been rectified from chlorido of calcium; he (Dr. Snow) found its boiling point to be 140°; he was not aware that the elastic force of its vapour, at other temperatures, had been ascertained; but, from some experiments that he had made, it seemed to follow a ratio very similar to those for ether-vapour and vapour of water; he had ascertained the quantity of vapour of chloroform that air would hold in solution, at various temperatures, and it was shown in a table, of which the following is a copy:—

## Quantity that 100 cubic inches of air will take up.

Temp.	Cubic inches.	Temp.	Cubic inches.
50° . . .	9	75° . . .	29
55 . . .	11	80 . . .	36
60 . . .	14	85 . . .	44
65 . . .	19	90 . . .	55
70 . . .	24		

The quantity of this vapour in the air the patient inhaled at ordinary temperatures was only about a quarter as much by measure as there would be of ether,—being, however, nearly twice as heavy; there was nearly half as much by weight. Now, on account of the small space it occupied, it only excluded the air to a quarter the amount that ether-vapour did, and therefore interfered but little with the natural process of respiration; the patient, indeed, could take in nearly the usual amount of oxygen without quickening or enlarging the respiratory movements. It was to be observed that temperature exerted a great influence over the quantity of this vapour that air would take up, and thus an elevation of little more than fifteen degrees in the warmth of the apartment would double the amount of it which the patient would inhale in a given time, if no means were taken to regulate the evaporation. Dr. Simpson recommended the chloroform to be inhaled from a sponge or handkerchief, and this simple means was efficient; but he (Dr. Snow) preferred to use an apparatus, as, without it, more of the vapour was blown away by the warm breath of the patient than was inhaled. The strength of the vapour could not be regulated; it could not even be known when it was all expended, and no exact observations could be collected. The chloroform was of easier application than ether, on account of its quicker action; but for the same reason, greater care was required in its use to avoid accident.

Dr. F. Bird said that he had seen the chloroform administered that day in two operations, by Mr. Phillips, at the Westminster Hospital; it was perfectly successful, and the patients recovered their consciousness very quickly.—*Lancet*, Nov. 27, 1847.

68. *Operations performed at St. Bartholomew's Hospital, upon Patients rendered insensible to Pain, by the Inhalation of Chloroform.*—HOLMES COOTE, Esq., reports (*Lancet*, Nov. 27, 1847) three operations performed by Mr. Lawrence, on patients under the influence of chloroform,—two, lithotomy by the lateral operation, and the third, extirpation of a tumour from the breast. These cases, Mr. Coote says, confirm the favourable report given by Prof. Simpson, of the effects of this agent.

"These three patients," Mr. Coote states, "did not experience the smallest inconvenience from the inhalation into the lungs: the condition into which they were thrown—differing from the state of stupor, which commonly ensues after the inhalation of ether—bore the closest resemblance to profound sleep; they recovered quickly, the smell was speedily gone, and the cases are now going on most favourably.

"Without wishing in any way to detract from the very great merit of Professor Simpson, in introducing this valuable agent, I may observe that for some considerable time Mr. Lawrence has used, in private practice, the chloric ether, which is chloroform in spirit and water. *Patients with irritable lungs, who could not tolerate the violent paroxysms of coughing induced by the sulphuric ether*, readily inhaled the chloric ether, the taste and smell of which are similar to those of chloroform; the anæsthetic effect was more gently induced, and there were fewer complaints, on recovery, of soreness of the chest, headache, &c. The less irritating effect of the chloric ether was noticed by Mr. Taylor, and by myself, in some experiments (reported in this journal) performed upon animals; their efforts to escape were most violent, when immersed in the vapour of sulphuric ether.

"One of the students of the hospital, who in the early part of the year was anxious to have some painful stumps of teeth removed from the jaw, kindly consented to take the ethers upon two different occasions, and to report the result. He described the taste of the chloric ether as much more agreeable than that of the sulphuric; the effect upon the lungs as less irritating and oppressive; but he thought that the state of unconsciousness was not equally complete. Mr. Lawrence